



Transforming claims through predictive modelling

Analytics - a new frontier in claims management

Insurers are facing a perfect storm, making sustainable profits even more challenging

Four key trends are driving this event:

- ▶ An increase in the number and severity of natural disasters, which is driving up claims and reinsurance costs;
- ▶ Requirements to satisfy new prudential regulations will result in increased capital adequacy requirements;
- ▶ Volatile financial markets impacting investment income;
- ▶ Ever increasing risk of claims inflation as a result of fraud across the value chain.

Responding to this challenge is increasingly difficult as many insurers have exhausted the traditional avenues of tightened underwriting and expense control to improve profitability.

Presented in this paper is a discussion of how advanced claims analytics and predictive modelling can lead to identifying and controlling claims costs, integrating the claim knowledge back into the underwriting rule set, and transforming the entire claims capability as a result of this insight.

Claims departments are under increasing pressure to produce better loss ratios. Predictive modelling enables claims departments to mitigate those claims most at risk

What drives claims development?

The development of some claims is unavoidable due to the actual loss circumstances and damages involved. However part of the loss development that occurs is avoidable if addressed early in the claim life cycle and appropriate mitigation strategies are invoked.

For claims that experience a large unexpected development, the cause can often be traced to one or more underlying characteristics of that claim. However, it is difficult for even the most experienced claims adjusters to recognise and quantify the preponderance of risk factors that characterises a claim with a high potential for additional loss development in a timely fashion.

If it were possible to identify and then understand these factors, early action could be taken from first notice of loss to mitigate the development of the claim through proper assignment of the claim to an adjuster with the appropriate level of experience to handle the claim appropriately.

Predictive modelling

Predictive modelling allows for simultaneous consideration of many variables and quantification of their overall effect. When a large number of claims are analysed, patterns regarding the characteristics of the claims that drive loss development begin to emerge.

Predictive modelling is commonly utilised by many insurers in pricing and underwriting, as well as in marketing, distribution and premium audit. The application of this technique to claims is an extension of the same general approach.

Predictive models are most effective when they are constructed using a company's own historical claims data since this allows the model to recognise the specific nature of a company's exposure as well as its claims practices. The construction of the model also involves input from the company throughout the process, as well as consideration of industry leading claims practices and benchmarks.

Predictive modelling can be used to quantify the impact to the claims department resulting from the failure to meet or exceed claim service leading practices. It can also be used to identify the root cause of claim leakage¹.

Proper use of predictive modelling will allow for potential savings across two dimensions:

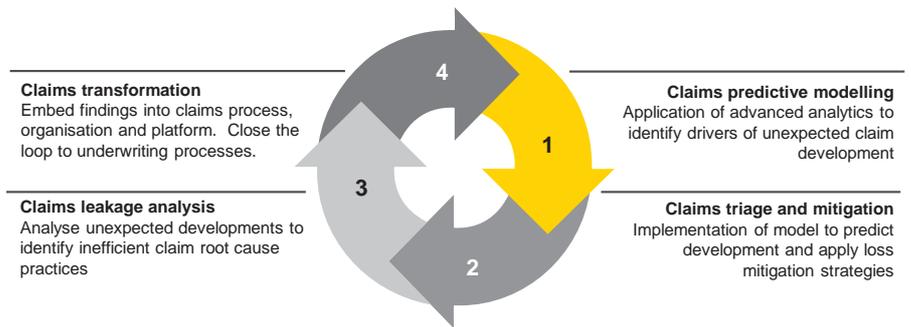
- ▶ Early identification of claims with the potential for high leakage, thereby allowing for the proactive management of the claim.
- ▶ Recognition of practices that are unnecessarily increasing claims settlement payments.

It is our estimate that a combination of predictive modelling and claims leakage analysis has the potential to result in an estimated 1% - 2.5% per annum in loss ratio savings

¹ Represents the difference between the amount actually paid out on claims, and what should have been paid out. It refers to the money lost during the claim settlement process from preventable causes; such as inefficient processing, human error, outdated operational procedures and fraud.

The process

The four-step process shown below demonstrates the path to improvement utilising predictive modelling techniques:



1. Claims predictive modelling

The construction of the predictive model should follow a disciplined process of claims data gathering, assembly of an historical database, selection of predictor variables and testing of a model. All the predictor variables used should be available when the claim is reported, to be consistent with the adjuster's initial review of the claim. These variables include claim attributes, factors about the claimant and demographic and geographic indicators. The result of the predictive modelling process is an algorithm that is used in the triaging of newly reported claims based on their potential for future loss development.

2. Claims triage and mitigation

Adjusters will prioritise their case loads based on the claims that have the highest potential for future loss development. In addition to the triaging information, a rule set should be designed that suggests specific loss mitigation steps based on the reason codes that are produced by the predictive model. Examples of these claims mitigation strategies are:

- ▶ Prompt assignment of senior claims handler;
- ▶ Prompt assignment of nurse case manager or rehabilitation specialist;
- ▶ Proactive early settlement efforts; and
- ▶ Application of return to work initiatives.

3. Claims leakage analysis

Some of the predictive model cost drivers will be related to leakage root cause claim drivers. The remaining leakage areas will be discovered through a detailed review of claims that develop further than the model predicted. This remaining unexplained development is subjected to a claims leakage root cause analysis which will identify additional root-cause drivers of development not already captured in the model.

These drivers will lead to insight into the areas of improvement in current claims department practices. This targeted approach is superior to a typical claims review because it focuses on the adverse development that is not statistically explainable by patterns in historical data.

The goal of the claims leakage analysis is to develop agreed-upon enhancements to the claim process. The aim is to develop and implement enhancements that will have a measurable and immediate impact on the cost of claims and improve adjuster and supervisory performance.

4. Transformation

a. Claim transformation

The insights gained through the application of advanced analytics should be embedded into the insurer's claims capability and potentially used as the basis of a business case for justifying a larger claims transformation programme.

- ▶ Current claims can be scored for loss development potential by applying advanced analytics, creates an effective way to triage claims and proactively apply loss mitigation strategies.
- ▶ The insights should be used to improve claims processes and practices to reduce unnecessary payments on future claims.
- ▶ These modified processes and business rules should be implemented into the underlying claims technology platform to improve process efficiency and claim effectiveness.
- ▶ Execute claim training to focus on implementation of leading practices developed from predictive analysis.
- ▶ Conduct quarterly quality assessment reviews to test that remediation efforts are mitigating and eliminating claim leakage and improving claim adjudication performance.

b. Continuous improvement

To promote continuous improvement and identification of additional claims leakage exposures, organisations should implement a claims quality self-assessment process. This process is utilised by claim managers to perform periodic sampling of claims in between formal claim audits. It consists of a customised set of claim audit leakage and compliance questions and a scoring model to test that the claim operations and claim adjusters are meeting and exceeding performance expectations.

As these changes are implemented and improvements are observed, the process iterates. There is a feedback loop back to the claims predictive model, so that it can be refreshed and calibrated to the shifting claims experience.

c. Underwriting process

The processes of scoring claims using the predictive model and of evaluating the claims leakage cost drivers reveal attributes of accounts that are problematic and likely to drive claim costs. The attributes of these problematic accounts can be used as additional criteria in underwriting procedures, directly and effectively channelling claims intelligence to the underwriting function. The addition and consideration of these attributes can be thought of as a refinement to the existing accept/reject underwriting decision process that is made. Prior to making a decision, the underwriter will consider the result of the claims predictive modelling and leakage analysis, which will better inform the underwriter of the overall profitability of that account thereby closing the loop between underwriting and claims.

Conclusion

There is a significant opportunity for savings by applying claims predictive modelling and leakage analysis to a company's claims operations. The key to this approach is leveraging all of the available information (internal and external) to quantify effects and identify claims with a high potential for future development. The combination of predictive modelling and claims leakage analysis integrates valuable knowledge back into the company's processes, people and technology.

The real winners of this analytical process will take it a step or two further. Insurers have the opportunity to modify their underwriting process, customer value proposition and overall strategy from the knowledge gained.

For more information please contact

Paul Clark

Asia - Pacific Sector Leader
Insurance
Tel: +61 2 8295 6967
Paul.Clark@au.ey.com

Andrew Matthews

Tel: +61 3 8295 6967
Andrew.Matthews@au.ey.com

Warrick Gard

Tel: +61 29248 4484
Warrick.Gard@au.ey.com

Grant Peters

Tel: +61 2 9248 4491
Grant.Peters@au.ey.com

Hardik Dalal

Tel: +61 2 9248 4476
Hardik.Dalal@au.ey.com

Clifford Foster

+61 3 9288 8336
Clifford.foster@au.ey.com

Jeffery Eberwein

+61 3 9288 8600
Jeffery.Eberwein@au.ey.com

KP Karunakaran

+61 3 9288 8336
kp.karunakaran@au.ey.com

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